

CLAIMS

What is claimed is:

- Mark 17*
1. A method for transmitting data from a portable computer to a telephone comprising:
connecting the portable computer with the telephone, the telephone having operating capabilities, the telephone connected to network connected devices;
supplying the portable computer with telephone operating parameter data for a communications session between the telephone and one or more of the network connected devices, the communications session including an exchange of messages with the one or more of the network connected devices;
the portable computer exchanging the telephone operating parameter data and the operating capabilities with the telephone; and
the portable computer establishing telephone operating parameters for the communications session based on the telephone operating parameter data and the operating capabilities, the telephone operating parameters providing options and features for the communications session.
2. The method of claim 1, wherein the exchange of messages includes simultaneous exchanges of voice and packet data messages.
3. The method of claim 1, wherein the method includes, prior to connecting the portable computer with the telephone, the portable computer storing user information, the user information includes user characteristics, the operating parameter data includes user information.
4. The method of claim 1, wherein the method includes, prior to connecting the portable computer with the telephone, the portable computer storing user information, the user information includes an identification corresponding to the portable computer and user access parameters.

5. The method of claim 1, wherein the operating parameter data comprises constructs formatted according to an applications layer protocol, the applications layer protocol having frame formats for telephony functions.

5 6. The method of claim 1, wherein the telephone comprises an Ethernet telephone.

10 7. The method of claim 1, wherein after the establishing telephone operating parameters step, the method includes a user placing a phone call, the placing including:

the user starting a dialing program;

the user inputting values to the portable computer, the values corresponding to a recipient network connected device;

15 the portable computer displaying the values and phone call status information;

the portable computer transforming the values into input data formatted according to a data link layer protocol, the data link layer protocol encapsulating frames formatted according to an application layer protocol, the application layer protocol adapted for telephony functions; and

20 the portable computer transmitting the input data to the telephone.

25 8. The method of claim 1, wherein after the establishing telephone operating parameters step, the method includes a user placing a conference call, the placing including:

the user starting a conferencing program;

25 the user inputting values to the portable computer, the values corresponding to a plurality of conference participant network connected devices;

30 the portable computer displaying the values and conference call status information;

the portable computer transforming the values into input data formatted according to a data link layer protocol, the data link layer protocol encapsulating frames formatted according to an application layer protocol, the application layer protocol adapted for telephony functions; and

the portable computer transmitting the input data to the telephone.

9. The method of claim 1, wherein after the establishing telephone operating parameters step, the method includes a user forwarding a call, the forwarding including:
5 the user starting a forwarding program; and
 the user inputting a number to the portable computer, the number corresponding to a forwarding destination network connected device;

10 the portable computer displaying the number and forwarding status information;
 the portable computer transforming the number into input data formatted according to a data link layer protocol, the data link layer protocol encapsulating frames formatted according to an application layer protocol, the application layer protocol adapted for telephony functions; and
 the portable computer transmitting the input data to the telephone.

15 10. The method of claim 1, wherein:
 the portable computer corresponds to a user and has a display; and
 after the establishing telephone operating parameters step, the method includes the portable computer receiving an incoming call, the receiving includes:

20 the portable computer receiving an incoming call message from the telephone, the incoming call message indicating that a first network connected device is waiting to start a call with the user; and
 the portable computer displaying an incoming call screen on the display.

25 11. The method of claim 1, wherein after the establishing telephone operating parameters step, the method includes a user placing a phone call, the placing including:
 the telephone receiving input data from the portable computer, the input data formatted according to a data link layer protocol, the data link layer protocol encapsulating frames formatted according to an application layer protocol, the application layer protocol adapted for telephony functions; and

30 the telephone transforming the input data into transport data formatted according to a transport protocol for a packet switched network; and

the telephone transmitting the transport data to a gateway server, the gateway server connected to at least one switched circuit network including a public switched telephone network.

5 12. The method of claim 1, wherein after the establishing telephone operating parameters step, the method includes a user placing a conference call, the placing including:

10 the telephone receiving input data from the portable computer, the input data formatted according to a data link layer protocol, the data link layer protocol encapsulating frames formatted according to an application layer protocol, the application layer protocol adapted for telephony functions; and

15 the telephone transforming the input data into transport data formatted according to a transport protocol for a packet switched network; and

15 the telephone transmitting the transport data to a gateway server, the gateway server connected to at least one switched circuit network including a public switched telephone network.

20 13. The method of claim 1, wherein after the establishing telephone operating parameters step, the method includes a user forwarding a call, the forwarding including:

20 the telephone receiving input data from the portable computer, the input data formatted according to a data link layer protocol, the data link layer protocol encapsulating frames formatted according to an application layer protocol, the application layer protocol adapted for telephony functions; and

25 the telephone transforming the input data into transport data formatted according to a transport protocol for a packet switched network; and

25 the telephone transmitting the transport data to a gateway server, the gateway server connected to at least one switched circuit network including a public switched telephone network.

30 14. The method of claim 1, wherein after the connecting, the method includes: powering up the portable computer; and

in response to the powering up of the portable computer, initializing the portable computer and the telephone, the initializing including the exchanging and establishing steps.

5 15. The method of claim 1, wherein:

the portable computer includes a display;

after the establishing step, the method includes a user starting a telephony program, the starting including:

the portable computer displaying a user interface element corresponding to a first menu on the display, the first menu including a list of telephony programs available for a particular connected line;

the user selecting the first menu user interface element;

the portable computer displaying a first menu list, the first menu list including user interface elements corresponding to the telephony programs; and

the user selecting a program from the list.

15 16. The method of claim 1, wherein the method includes:

prior to connecting the portable computer with the telephone, the portable computer storing user information, the user information includes an identification corresponding to the portable computer, user access parameters, and user characteristics corresponding to the telephone operating parameter data; and

establishing telephone operating parameters includes the user selecting user setting inputs, the user setting inputs corresponding to the portable computer identification, user access parameters, and user characteristics, the user selecting changing the corresponding telephone operating parameter data.

25 17. The method of claim 1, wherein establishing telephone operating parameters includes the user selecting phone setting inputs.

30 18. The method of claim 1, wherein the network connected devices include a gateway server, the gateway server providing access to a public switched telephone

network.

19. The method of claim 1, wherein the method includes, prior to the connecting step, the telephone exchanging voice messages with at least one of the network connected devices.

20. The method of claim 1, wherein:
the telephone connected to a gatekeeper, a directory server and a gateway server by a local area network link; and
communications between the telephone and the gatekeeper, gateway server, and directory server formatted according to a soft private branch exchange telephony application layer protocol.

21. The method of claim 1, wherein:
the telephone connected by a local area network link to a router;
the router connected to at least one packet based network including an Internet source; and
communications between the router and the telephone formatted according to packet based network application protocols.

22. The method of claim 1, wherein:
the method includes the user starting a telephony program; and
the portable computer controls execution of the telephony program.

23. The method of claim 7, wherein after the transmitting step the method includes:
the user entering text data to form a memo corresponding to the phone call;
the portable computer creating a data record corresponding to the phone call; and
the portable computer attaching the memo to data record.

24. The method of claim 7, wherein the portable computer includes a user interface and a display, the inputting is accomplished through the user interface, and the portable computer displays a telephone number entry field in which the user inputs the values.

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25. The method of claim 8, wherein:
the portable computer includes a display;
the starting includes a user selection of a user interface element for a conferencing feature, the user interface element disposed on the display;
in response to the user selection, the portable computer displays a list of conference actions for subsequent user selection.

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26. The method of claim 10, wherein:
the portable computer includes an address database;
the incoming call message includes a caller name, and a caller identification;
the incoming call screen includes a user selection for saving the caller name and the caller identification to the address database.

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27. The method of claim 16, wherein the user setting inputs include the network address of the telephone.

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28. The method of claim 21, wherein:
the portable computer includes processing resources for Internet access; and
the telephone includes processing resources for Internet access.

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29. The method of claim 21, wherein:
the portable computer includes processing resources for Internet access including Internet applications, transmission control software, and Internet protocol software; and
the telephone includes an Internet access application, transmission control software, carrier sense multiple access/collision detection software, and Internet protocol software.

30. The method of claim 21, wherein:

the portable computer includes processing resources for Internet access including Internet display applications and display/user input transfer software; and

5 the telephone includes processing resources for Internet access including Internet applications, display/user input transfer software, transmission control software, Internet protocol software, and carrier sense multiple access/collision detection software.

10 31. A method for exchanging voice and data messages between a telephone and devices connected to a network, the telephone connected to the network, the method comprising:

connecting the telephone with a portable computer;

15 the portable computer exchanging telephone operating parameter data with the telephone, the operating parameter data providing options for communications between the telephone and the network connected devices; and

20 responsive to a user indication of a desired communication, the portable computer exchanging call data with the telephone, the call data corresponding to the desired communication, the call data formatted according to an application layer protocol, and the underlying transport, network, and data link layer protocols, the application layer protocol having frame formats for telephony functions;

25 the telephone exchanging messages with an addressed network connected device, the messages corresponding to the desired communication, the addressed network connected device having a network address, the message including data corresponding to the address of the addressed network connected device.

30 32. The method of claim 31, wherein, the method includes, prior to connecting the portable computer with the telephone, the portable computer storing user information, the operating parameter data comprises the user information, the user information comprises an identification corresponding to the portable computer and user access parameters.

33. The method of claim 31, the method includes:
the telephone requesting a connection to a first network connected device; and
the first network connected device responding to the connection request;

wherein the message data comprise:

5 in response to a user input, a phone number corresponding to the first network connected device transmitted from the portable computer to the telephone; and
upon receipt by the telephone of the first network connected device response to the connection request, a first connection made response transmitted from the telephone to the portable computer.

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34. The method of claim 31, wherein the telephone comprises an Ethernet telephone, and the portable computer comprises a palm-sized computer.

15 35. The method of claim 31, wherein:

the telephone is connected to a gatekeeper, a directory server and a gateway server by a local area network link; and

20 communications between the telephone and the gatekeeper, the gateway server, and the directory server formatted according to a soft private branch exchange telephony application layer protocol.

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36. The method of claim 31, wherein:
the telephone connected by a local area network link to a router;
the router connected to at least one packet based network including an Internet source; and
communications between the router and the telephone formatted according to packet based network application protocols.

30 37. The method of claim 31, wherein the exchange of messages includes simultaneous exchanges of voice and packet data messages.

38. The method of claim 32, wherein:

the telephone has an identification; and

the method includes the telephone presenting the identification corresponding to the portable computer in place of the telephone identification to devices connected to and communicating with the telephone.

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39. A portable computer adapted for connection to a telephone, the portable computer comprising:

a port for connecting to the telephone, the telephone having capabilities;

a memory storing user information corresponding to a user; and

processing resources adapted to exchange data with the telephone, the data including the user information and data corresponding to the telephone capabilities;

the exchange of the data enabling the portable computer to:

discover capabilities of the telephone;

provide the user information to the telephone; and

establish telephone operating parameters for telephone communications with devices connected to the telephone based on the user information and the telephone capabilities.

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40. The portable computer of claim 39 including:

a display providing user interface graphic elements corresponding to data exchanged with the telephone; and

a user interface enabling the user to input data supplementing the user information provided to the telephone.

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25 41. The portable computer of claim 39, wherein the user information comprises:

an identification corresponding to the portable computer;

user characteristics; and

user access parameters.

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42. The portable computer of claim 39, wherein the portable computer

comprises a palm-sized computer.

43. The portable computer of claim 39, wherein the data exchanged with the telephone corresponding to portable computer control of the execution of the telephony programs, the telephone capabilities, and the user information formatted according to an applications layer protocol, the applications layer protocol having frame formats for telephony functions.

10 44. The portable computer of claim 39, wherein the portable computer adapted to provide data processing and user interface functions without connection to the telephone.

15 45. The portable computer of claim 39 includes processing resources for Internet access.

20 46. The portable computer of claim 39 including processing resources for Internet access including Internet applications, transmission control software, and Internet protocol software.

25 47. The portable computer of claim 39 including processing resources for Internet access including Internet display applications and display/user input transfer software.

48. The portable computer of claim 39 including processing resources for user interface support of video data.

30 49. The portable computer of claim 39 including processing resources for user interface support of video data including video data decoding, and video display.

50. The portable computer of claim 39 including processing resources for user interface support of video data, video data decoding, video display, and video camera

image data.

51. The portable computer of claim 39, wherein the exchange of the data enables the portable computer to control execution of telephony programs.

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52. The portable computer of claim 40, wherein the data exchanged with the telephone includes:

data corresponding to portable computer control of telephony programs; and
data corresponding to the status of the devices connected to the telephone.

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53. The portable computer of claim 41, wherein:

the telephone has an identification, and

the identification corresponding to the portable computer presented by the telephone in place of the telephone identification to devices connected to and communicating with the telephone.

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54. A telephone adapted for connection to a portable computer, the telephone comprising:

20 a port for connecting to the portable computer, the portable computer having user information corresponding to a user;

network communication capabilities including a communication port;

portable computer companion capabilities;

processing resources adapted to exchange data with the portable computer, the data including:

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the user information,

data corresponding to the network communication capabilities; and

the portable computer companion capabilities;

the exchange of data enabling the telephone to:

discover user information and capabilities of the portable computer;

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provide the network communication capabilities and the portable computer companion capabilities to the portable computer; and

indicate the network communication capabilities to devices connected to the telephone via a network.

55. The telephone of claim 54, wherein:

5 the portable computer adapted to control execution of telephony programs; the data exchanged with the portable computer includes data corresponding to portable computer control of the telephony programs; and responsive to commands from the portable computer, the exchange of the data enabling the telephone to communicate with devices connected to the telephone.

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56. The telephone of claim 54, wherein:

the telephone has an identification; the portable computer has an identification; and the portable computer identification presented by the telephone in place of the telephone identification to devices connected to and communicating with the telephone.

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57. The telephone of claim 54, wherein the telephone comprises an Ethernet telephone.

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58. The telephone of claim 54, wherein the data exchanged with the portable computer corresponding to the telephone capabilities and the user information formatted according to an applications layer protocol, the applications layer protocol having frame formats for telephony functions.

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59. The telephone of claim 54, including processing resources adapted to: receive incoming call data from a gateway server indicating that a first network connected device is waiting to start a call with a user; transform the incoming call data into an incoming call message formatted in a data link layer protocol for transmission to the portable computer, the data link layer protocol encapsulating frames formatted according to the application layer protocol.

60. The telephone of claim 54, wherein the telephone provides the network communication capabilities to a user without connection to the portable computer.

61. The telephone of claim 54 including processing resources for Internet access.

62. The telephone of claim 54, including processing resources for Internet access including Internet applications, display/user input transfer software, transmission control software, Internet protocol software, and Carrier Sense Multiple Access/Collision Detection software.

63. The telephone of claim 54, including processing resources for Internet access including an Internet access application, transmission control software, Carrier Sense Multiple Access/Collision Detection software, and Internet protocol software.

64. The telephone of claim 54, including:
a display; and
processing resources for video display and capture.

65. A communications system comprising:
a telephone having capabilities;
a portable computer connected to the telephone, the portable computer including:
 a port for connecting to the telephone;
 a memory storing user information corresponding to a user; and
 processing resources adapted to exchange data with the telephone, the data
 being the user information and data corresponding to the telephone capabilities;
 the exchange of the data enabling the portable computer to:

establish telephone operating parameters for telephone communications with devices connected to the telephone based on the user information and the telephone capabilities; and

a network link connecting the telephone to network connected devices.

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66. The communications system of claim 65 including a gateway server connected to the network link, and switched circuit network devices connected to the gateway server.

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67. The communications system of claim 65 including a router connected to the network link, and packet based network devices connected to the router.

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68. The communications system of claim 65, wherein:
the portable computer comprises a palm-sized computer; and
the telephone comprises an Ethernet telephone.

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69. The communications system of claim 65, wherein the data exchanged with the telephone corresponding to the telephone capabilities and the user information formatted according to an applications layer protocol, the applications layer protocol having frame formats for telephony functions.

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70. The communications system of claim 65, wherein:
the portable computer includes processing resources for user interface support of video data; and
the telephone includes:
a video display; and
processing resources for video display and capture.

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71. The communications system of claim 65, wherein the portable computer includes processing resources for user interface support of video data, video data decoding, and video display.

72. The communications system of claim 65, wherein the portable computer includes processing resources for user interface support of video data, video data decoding, video display, and video camera image data.

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73. The communications system of claim 67, wherein:
the portable computer includes processing resources for Internet access; and
the telephone includes processing resources for Internet access.

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74. The communications system of claim 67, wherein:
the portable computer includes processing resources for Internet access including Internet applications, transmission control software, and Internet protocol software; and
the telephone includes processing resources for Internet access including an Internet access application, transmission control software, Carrier Sense Multiple Access/Collision Detection software, and Internet protocol software.

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75. The communications system of claim 68, wherein:
the portable computer includes processing resources for Internet access including Internet display applications and display/user input transfer software; and
the telephone includes processing resources for Internet access including Internet applications, display/user input transfer software, transmission control software, Internet protocol software, and Carrier Sense Multiple Access/Collision Detection software.

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